UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,193	07/18/2003	Hidetsugu Shimura	Q76031	2231

23373 7590 02/11/2005

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
GRAINGER, QUANA MASHELL	
ART UNIT	**PAPER NUMBER**
2852	

DATE MAILED: 02/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/622,193	SHIMURA ET AL.	
	Examiner	Art Unit	
	Quana Grainger	2852	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-46 are rejected under 35 U.S.C. 102(a) as being anticipated by Shimura et al. The image forming apparatus by Shimura et al. teaches an image carrier which is structured so as to be able to carry an electrostatic latent image on a surface of said image carrier; a toner carrier which rotates in a predetermined direction while carrying toner and accordingly transports said toner to an opposed position facing said image carrier; a cleaner which removes toner remaining on said image carrier, and an image forming means which applies a predetermined developing bias upon said toner carrier, causes said toner carried by said toner carrier move to said image carrier, visualizes said electrostatic latent image with said toner, and accordingly forms a toner image, characterized in that said image forming means executes optimization during which a toner image is formed as a patch image and density control factors influencing an image density are optimized based on a image density of said patch image, and that prior to formation of said patch image, idling of said toner carrier is executed which requires rotation of said toner carrier at least one round or more (page 11, paragraph 0140). The density control factors include said developing bias. The image forming apparatus further comprising exposure means which exposes said surface of said image carrier with a light beam and accordingly forms said electrostatic latent image on said surface of said image carrier, characterized in that said density

control factors include an energy density of said light beam. The image forming apparatus further comprising light emitting means which irradiates light toward a patch image area of said surface of said image carrier in which said patch image is formed; and light amount detecting means which detects a light amount from said patch image area, characterized in that said light amount detecting means detects the light amount from said patch image area as it does not carry toner and the light amount from said patch image area as it carries said patch image, and said patch image density is calculated based on the result of the detection, and that while executing said idling, a preceding process is executed which requires to detect the light amount from said patch image area as it does not carry toner (paragraph [119]). The image forming apparatus characterized in that for execution of said preceding process, such a condition is set which makes at least one of said density control factors minimum. The image forming apparatus characterized in that it is possible to change said developing bias, as said density control factor, within a predetermined variable range, and that for execution of said preceding process, said developing bias is set to the minimum value within said variable range.

The image forming apparatus by Shimura et al. further comprising an intermediate member which is capable of temporarily carrying a toner image which has been formed on said surface of said image carrier; light emitting means which irradiates light toward a patch image area of a surface of said intermediate member in which said patch image is formed; and light amount detecting means which detects a light amount from said patch image area; characterized in that said light amount detecting means detects the light amount from said patch image area as it does not carry toner and the light amount from said patch image area as it carries said patch image, and said patch image density is calculated based on the result of the detection, and that

while executing said idling, a preceding process is executed which requires to detect the light amount from said patch image area as it does not carry toner. The image forming apparatus further comprising restricting means 45 which abuts on a surface of said toner carrier at a restricting position which is on the upstream side to said opposed position in a rotation direction of said toner carrier, and accordingly restricts the amount of said toner carried on said surface of said toner carrier, characterized in that with said toner carrier and said image carrier facing each other at said opposed position, said restricting position is below the center of rotations of said toner carrier. The image forming apparatus further comprising peeling means which abuts on said surface of said toner carrier at a peeling position which is on the upstream side to said restricting position in the rotation direction of said toner carrier, and accordingly peels off said toner adhering to said surface of said image carrier, characterized in that with said toner cagier and said image carrier facing each other at said opposed position, said peeling position is above said restricting position (Figure 3). The surface of said toner carrier is conductive. The image toner image is formed using said toner which contains a wax component which serves as a parting agent for prevention of fixing offset.

Shimura et al. teaches an image forming method in which an electrostatic latent image is formed on a surface of an image carrier and a predetermined developing bias is applied upon a toner carrier which rotates while carrying toner on a surface of said toner carrier, to thereby move said toner carried by said toner carrier to said image carrier and visualize said electrostatic latent image as a toner image, characterized in that optimization is executed which requires forming a toner mage as a patch image and optimizing density control factors influencing an image density based on a patch image density of said patch image to control an image density,

and that prior to formation of said patch image, idling of said toner carrier is executed which requires rotation of said toner carrier at least one round or more wherein a cleaner is used to remove toner remaining in said image carrier. A timer which measures an elapsed time since an end of formation of a toner image by said image forming means, characterized in that it is possible to selectively execute an image forming operation, which requires to form a toner image corresponding to an image formation request upon receipt of said image formation request by a user, and optimization which requires to form a toner image as a patch image, to detect a density of said patch image and to optimize a density control factor influencing an image density based on the result of the detection to control an image density, and that in the event that said image formation request is not newly received after said elapsed time measured by said timer has reached a first predetermined period, said optimization is executed. In the event that there is an image formation request newly received when said elapsed time is shorter than said first predetermined period but is equal to or longer than a second predetermined period which is shorter than said first predetermined period, said image forming operation in response to said image formation request is executed after executing said optimization. The toner carrier is rotated at least one round or more before formation of said patch image (paragraph [0140]). The charging means which charges said surface of said image carrier to a predetermined surface potential prior to formation of said electrostatic latent image, characterized in that said elapsed time is calculated measured since termination of charge of said image carrier by said charging means.

Shimura et al. teaches an image forming method in which an electrostatic latent image is formed on a surface of an image carrier in response to an image formation request from a user

and a predetermined developing bias is applied upon a toner carrier which rotates while carrying toner on a surface of said toner carrier, to thereby move said toner carried by said toner carrier to said image carrier, to visualize said electrostatic latent image with toner and to form a toner image, characterized in that in the event that there is not said image formation request newly received after an elapsed time since the end of formation of a toner image by said image forming means has reached a first predetermined period, optimization is executed which requires to form a toner image as a patch image, to detect a density of said patch image and to optimize a density control factor influencing an image density based on the result of the detection to control an image density. In the event that the image formation request is received when an elapsed time since the end of formation of a toner image by said image forming means is equal to or longer than a third predetermined period, before executing said image forming operation in response to said image formation request, optimization is executed which requires to form a toner image as a patch image after rotating said toner carrier at least one round or more, to detect a density of said patch image and to optimize a density control factor influencing an image density based on the result of the detection to control an image density. In the event that there is an image formation request newly received when an elapsed time since the end of formation of a toner image is equal to or longer than a third predetermined period, before forming a toner image in response to said image formation request, optimization is executed which requires to form a toner image as a patch image after rotating said toner carrier at least one round or more, to detect a density of said patch image and to optimize a density control factor influencing an image density based on the result of the detection to control an image density.

The image forming apparatus characterized in that in the event that there is not said image formation request newly received even after said fourth predetermined period from the end of said idling, said idling is executed once again. When the elapsed time reaches a fifth predetermined period which is longer than said fourth predetermined time, said idling is executed, a toner image is formed as a patch image, a density of said patch image is detected, and a density control factor influencing an image density is optimized based on the result of the detection. In the event that there is said image formation request newly received when an elapsed time since the end of formation of a toner image is equal to or longer than a sixth predetermined period, before executing said image forming operation in response to said image formation request, idling of said toner carrier is executed which requires to rotate said toner carrier at least one round or more. The image forming apparatus characterized in that in the event that there is said image formation request newly received when said elapsed time is equal to or longer than a seventh predetermined period which is longer than said sixth predetermined period, before forming a toner image in response to said image formation request, said idling is executed and optimization is then executed which requires to form a toner image as a patch image, to detect a density of said patch image and to optimize a density control factor influencing an image density based on the result of the detection.

Shimura et al. teaches an image forming method in which an electrostatic latent image is formed on a surface of an image carrier and a predetermined developing bias is applied upon a toner carrier which rotates in a predetermined direction while carrying toner on a surface of said toner carrier, to thereby move said toner carried by said toner carrier to said image carrier, to visualize said electrostatic latent image with toner and to form a toner image, characterized in

that in the event that there is not said image formation request newly received after an elapsed time since the end of formation of a toner image has reached a fourth predetermined period, idling of said toner carrier is executed which requires to rotate said toner carrier at least one round or more.

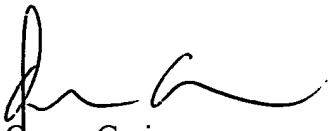
Shimura et al. also teaches an image forming method in which an electrostatic latent image is formed on a surface of an image carrier in response to an image formation request from a user and a predetermined developing bias is applied upon a toner carrier which rotates in a predetermined direction while carrying toner on a surface of said toner carrier, to thereby move said toner carried by said toner carrier to said image carrier, to visualize said electrostatic latent image with toner and to form a toner image, characterized in that in the event that there is said image formation request newly received when an elapsed time since the end of formation of a toner image is equal to or longer than a sixth predetermined period, before forming a toner image in response to said image formation request, idling of said toner carrier is executed which requires to rotate said toner carrier at least one round or more. The image forming method characterized in that in the event that there is said image formation request newly received when said elapsed time is equal to or longer than a seventh predetermined period which is longer than said sixth predetermined period, before forming a toner image in response to said image formation request, said idling is executed and optimization is then executed which requires to form a toner image as a patch image, to detect a density of said patch image and to optimize a density control factor influencing an image density based on the result of the detection.

Contact Information

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quana Grainger whose telephone number is 571-272-2135. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on 571-272-2136. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Quana Grainger
Primary Examiner
Art Unit 2852

QG